Project Title: Set Up AWS Backup Plan for EC2 and RDS

1. Objectives

The primary objective of this project is to deploy and secure a sample database application on AWS using:

- EC2 instance (compute
- Amazon RDS (database)
- AWS Backup for backup and recoveryThe goal is to implement a reliable backup and restore strategy, demonstrate data availability, and ensure data integrity.

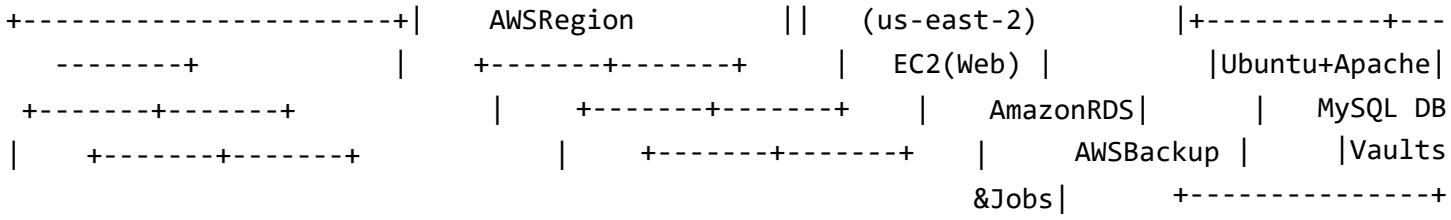
2. Introduction

Cloud-based deployments are now the standard for modern applications, providing scalability, security, and cost efficiency.In this project, we built a simple database-driven application using AWS infrastructure services. We configured backups, tested data recovery, and demonstrated the entire workflow of provisioning, securing, and backing up cloud resources.

3. Technology Stack

Component	Technology / Service
Compute	Amazon EC2 (Ubuntu)
Database	Amazon RDS (MySQL 8.0)
Backup & Restore	AWS Backup
Web Server	Apache2
Programming / CLI	Linux shell, MySQL client
OS	Ubuntu 22.04 LTS (on EC2)
Region	us-east-2 (Ohio)

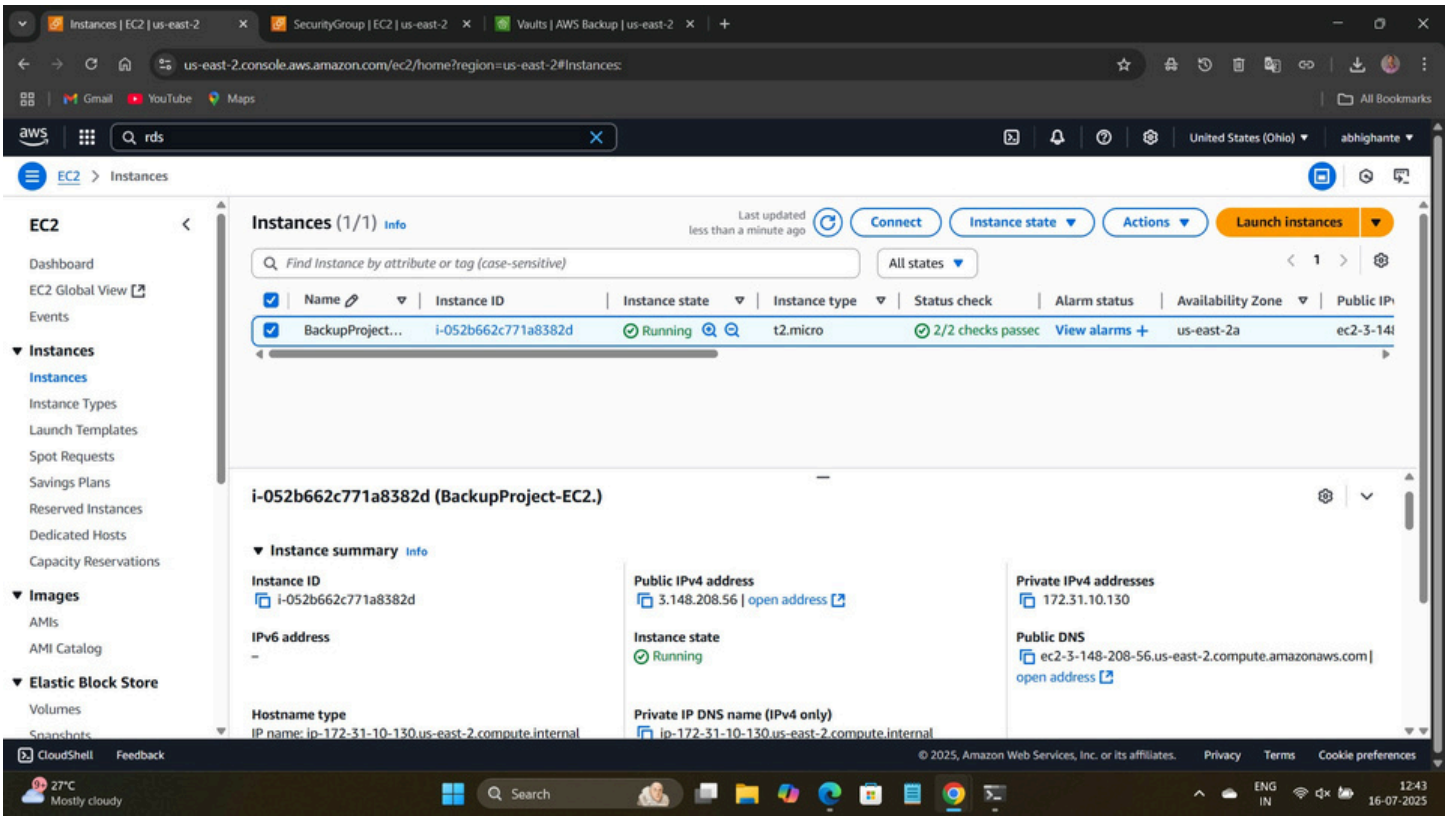
4. System Structure Diagram



5. Implementation Steps

Step 1: Launch EC2 instance

- Created a t2.micro EC2 instance in `us-east-2a`



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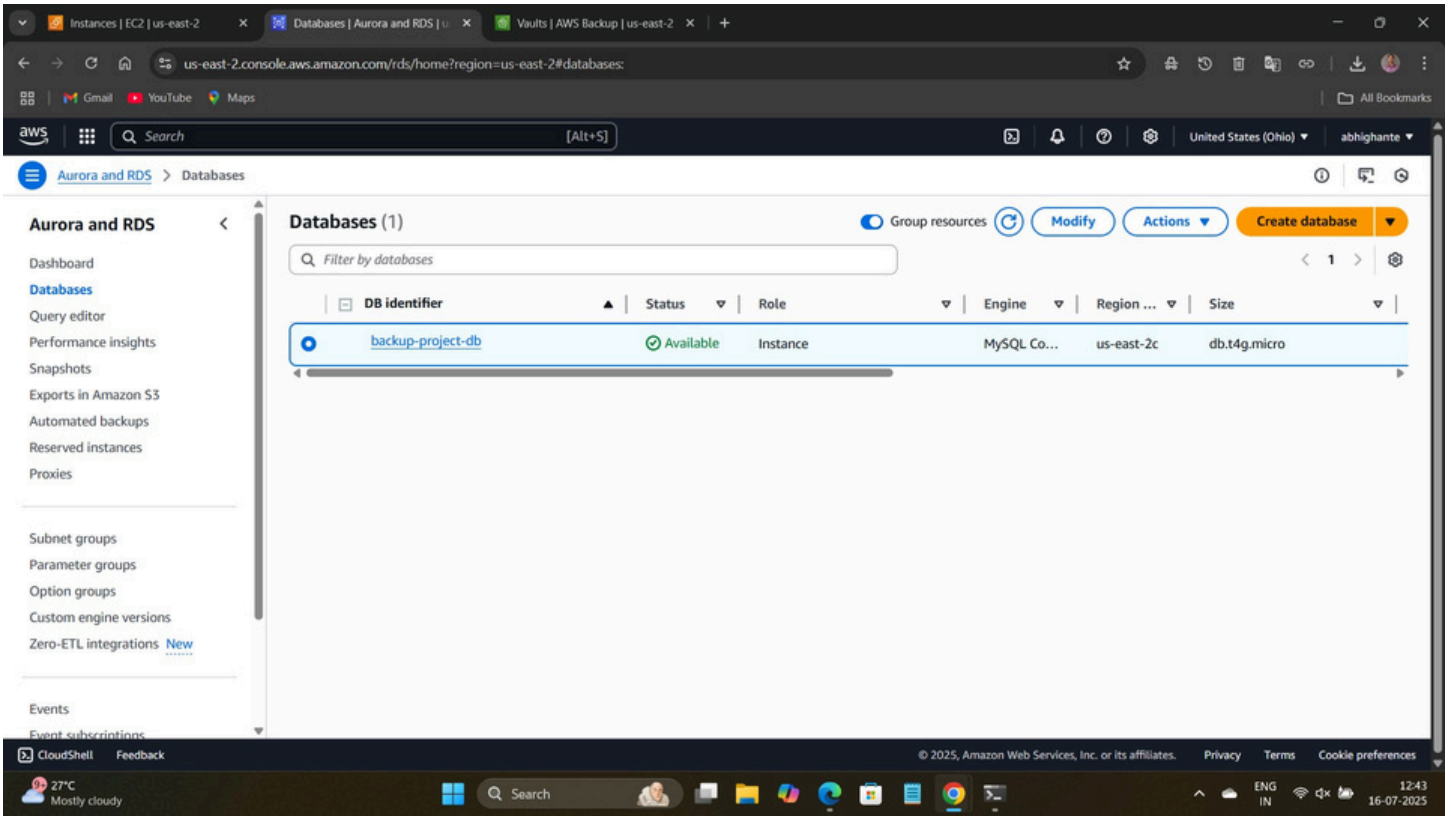
- Configured security groups to allow SSH (port 22) and HTTP (port 80)

Step 2: Set up Apache web server

```
sudo apt updatesudo apt install apache2 -y
```

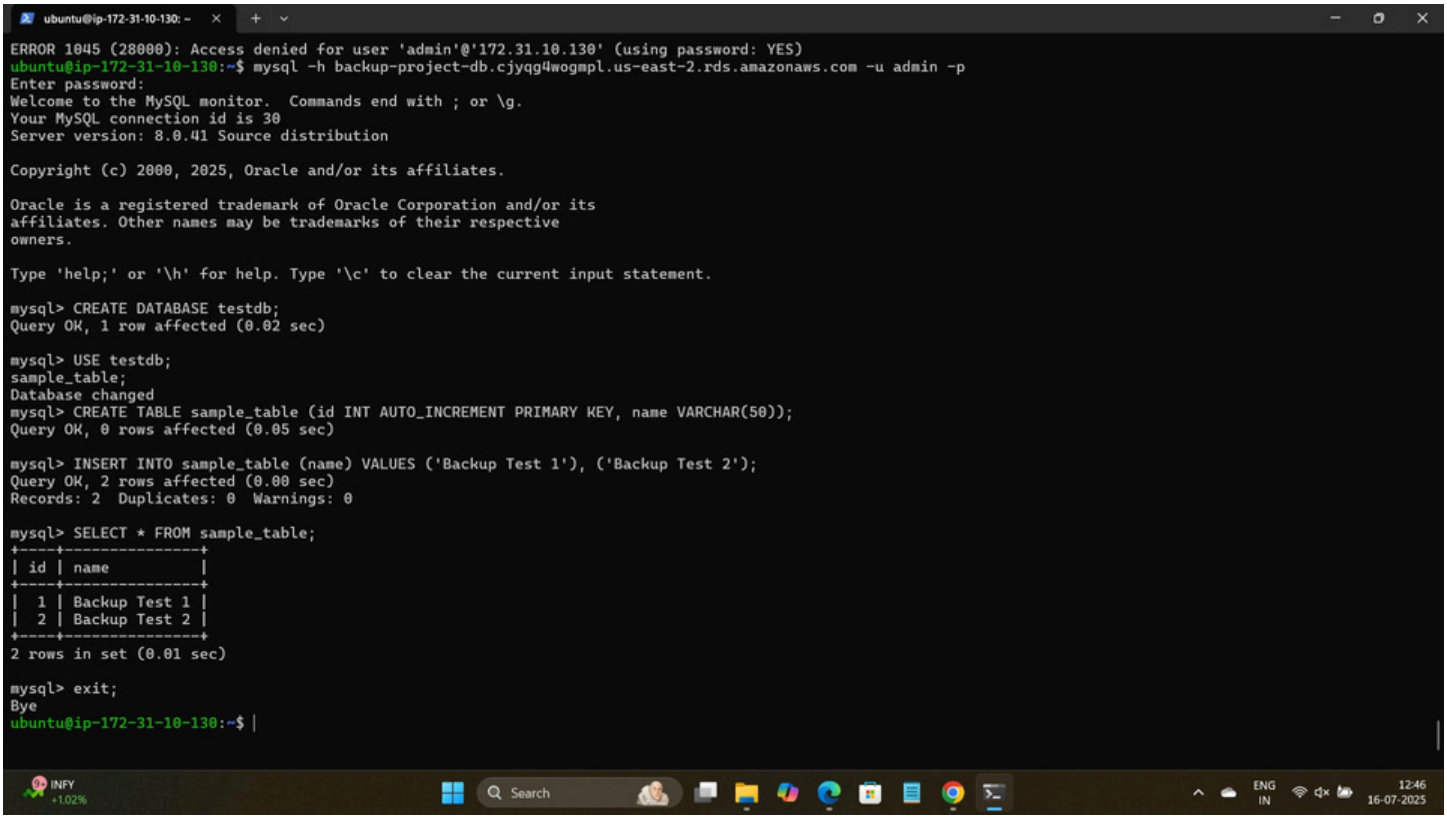
Step 3: Create Amazon RDS instance



- Launched MySQL database instance (`db.t4g.micro`) named `backup-project-db`
- Connected to it from EC2 via MySQL client

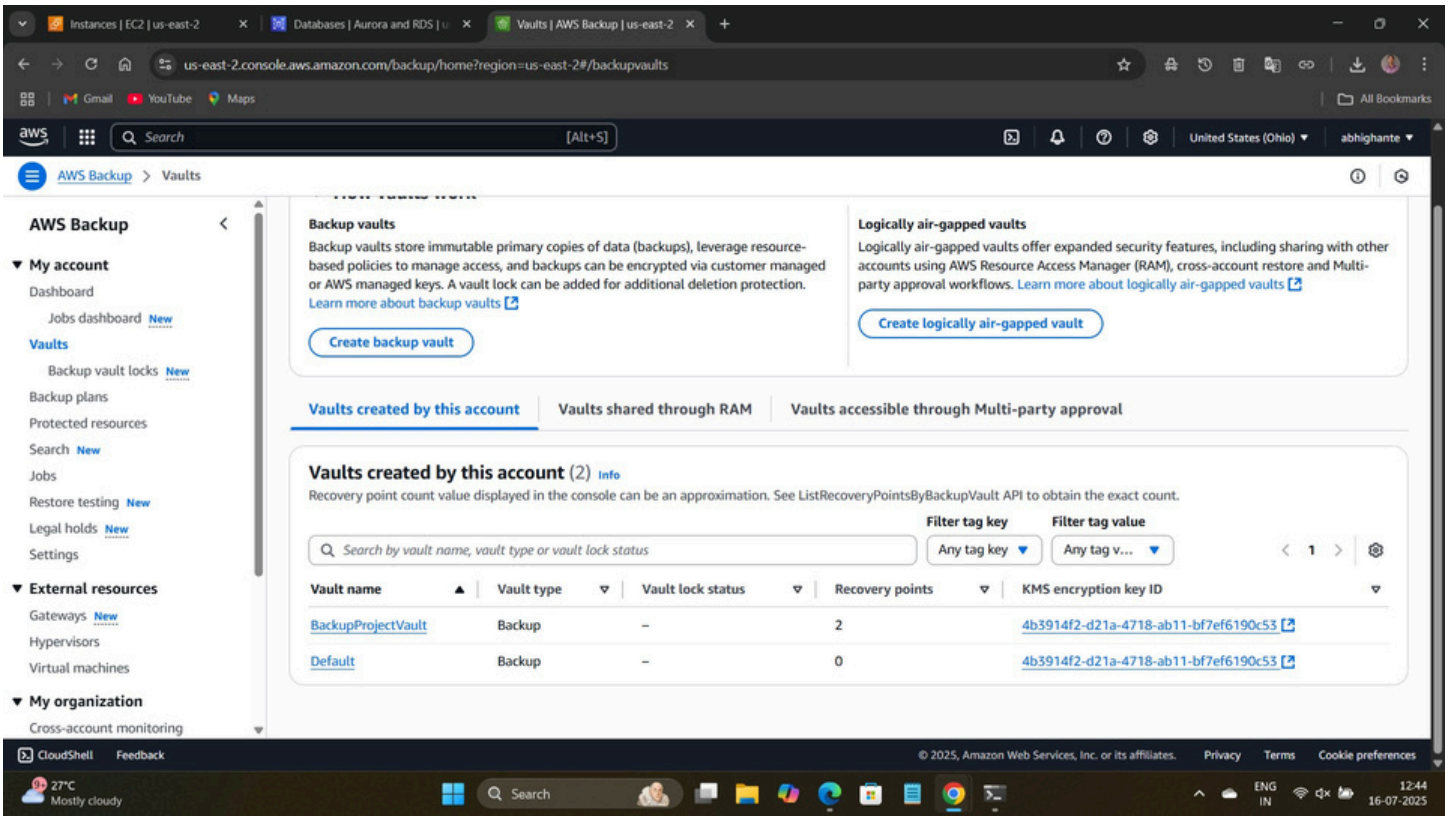
Step 4: Create and populate database

```
CREATE DATABASE testdb;USE testdb;CREATE TABLE sample_table ( id INT AUTO_INCREMENT PRIMARY KEY, name VARCHAR(50));INSERT INTO sample_table (name) VALUES ('Backup Test 1'), ('Backup Test 2');SELECT * FROM sample_table;
```

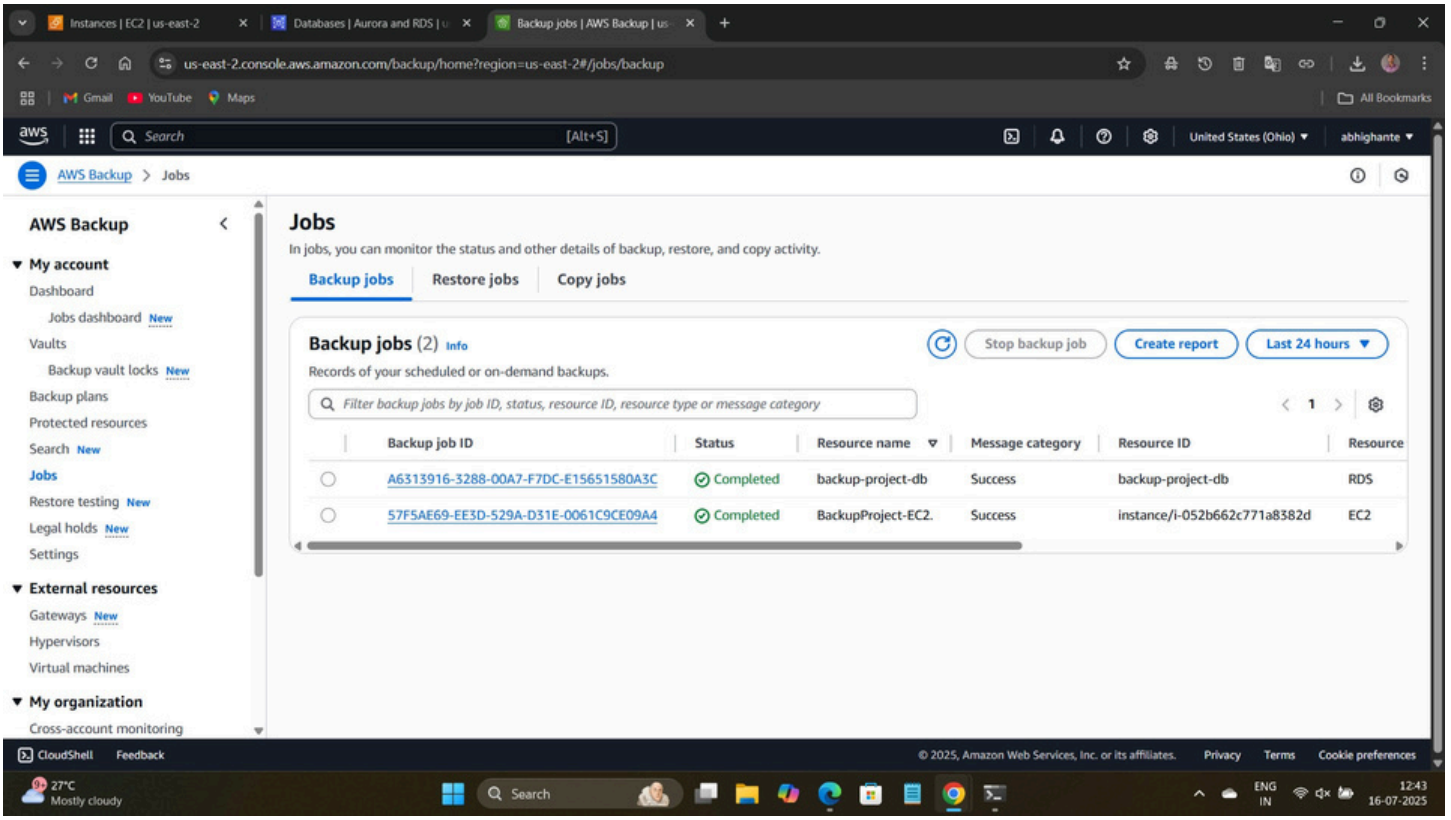


Step 5: Configure AWS Backup

- Created backup vaults

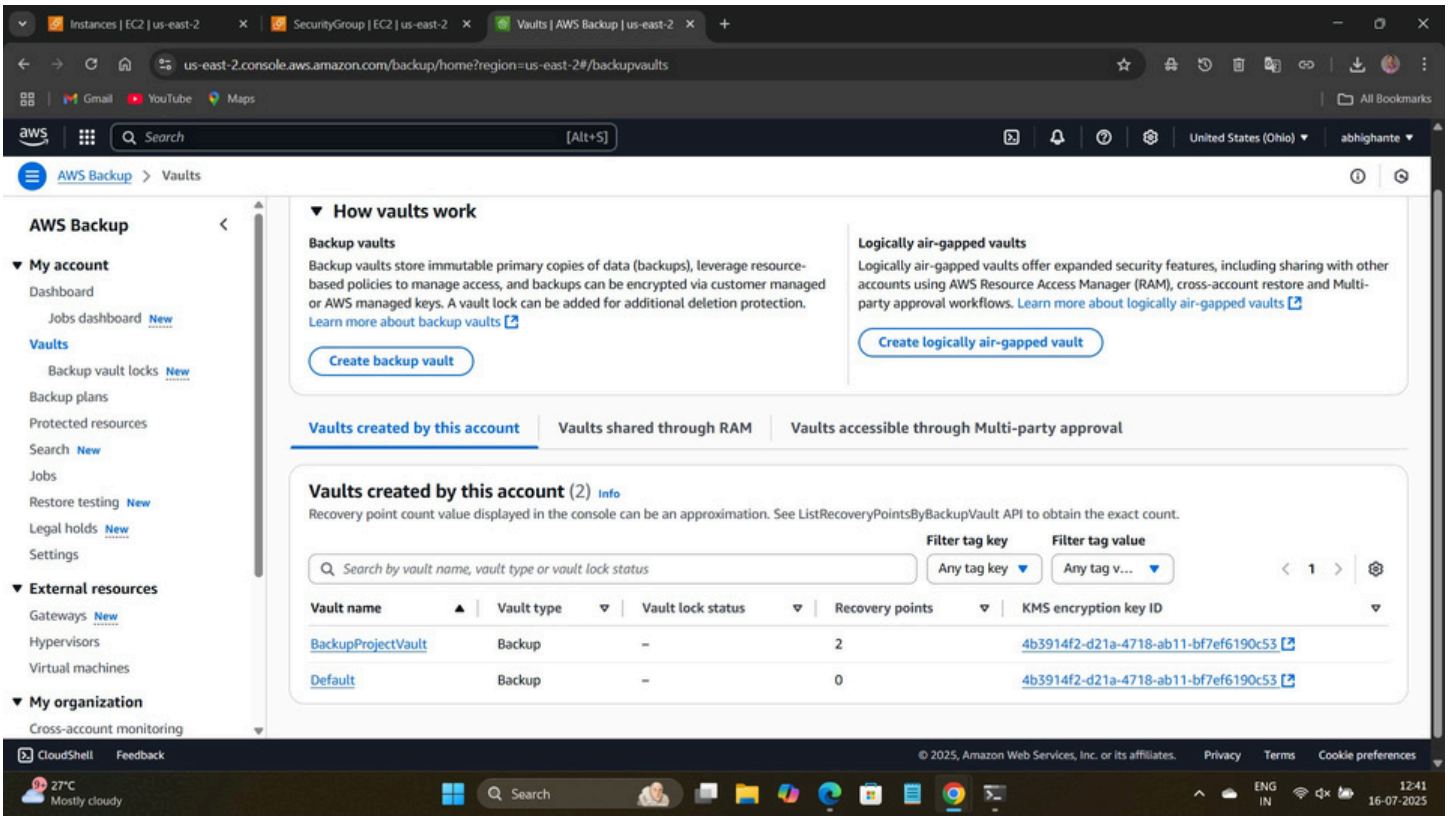


- Defined backup plans targeting EC2 and RDS
- Ran backup jobs successfully (as seen in AWS Backup console)



Step 6: Verify backups

- Verified recovery points created in backup vaults



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- Tested restore functionality

6. Results

- EC2 instance (i-052b662c771a8382d) is running and reachable (3.148.208.56)
- RDS instance backup-project-db is live, running MySQL 8.0, and contains test data
- AWS Backup vaults hold recovery points for both EC2 and RDS resources
- Backup jobs completed successfully with status Success

7. Conclusion

This project successfully demonstrates deploying a database application on AWS, connecting it securely to an EC2 instance, and implementing automated backup strategies using AWS Backup.The workflow ensures data resilience, supports disaster recovery, and showcases practical cloud infrastructure management.

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https://github.com/abhighante37/AWSBackupSetup

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